CμL9959

BUFFER - STORAGE ELEMENT

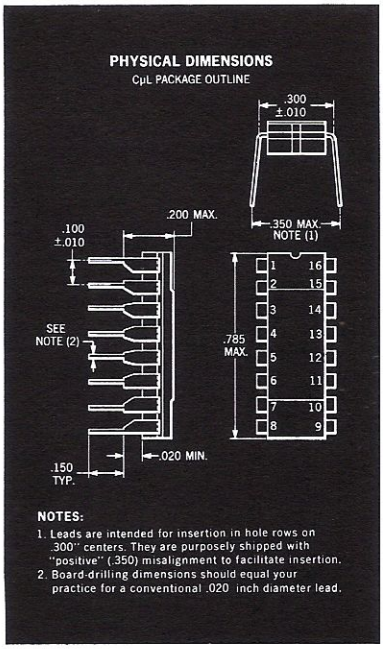
COUNTING MICROLOGIC® INTEGRATED CIRCUIT

GENERAL DESCRIPTION — The CμL 9959 Buffer-Storage unit consists of four gated-latch circuits, and a common gate driver, diffused into a single silicon substrate. Information which is present at the four data inputs enters the latches throughout the interval of a load command applied to the gate input terminal. With gate high, information is stored until a subsequent load command permits a change.

The unit has eight output terminals (both true and complement for each storage position).

RULES FOR USE OF CμL9959

The principal intended use of the CμL9959 is with industrial and ground support systems, with operating V_{CC} from 3.3 to 5.0 volts, and from 0°C to +75°C ambient temperature. This temperature range may be extended to -55°C by raising minimum V_{CC} to 4.0 Volts or it may be extended to +125°C by lowering maximum V_{CC} to 4.4 Volts.



ABSOLUTE MAXIMUM RATINGS (Note 1)

Storage Temperature	-55°C to +150°C
Supply Voltage (0°C to +75°C)	6.0 V
Gate Input and Data Input Pin Voltage	+4.0 V, -2.0 V
Current into Each Output Terminal	+15 mA
Voltage Applied to an Output Terminal	+6.0 V, -0.3 V

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

Characteristic	Min.	Typ.	Max.	Units	Conditions
Supply Voltage	3.3	3.8	5.0	V	
Power Consumption		115		mW	V_{CC} = 3.8 V Gate High
Power Consumption		135		mW	V_{CC} = 3.8 V Gate Low
Gate Input High	1.1			V	
Gate Input Low			0.5	V	
Data Input High	1.0			V	
Data Input Low			0.5	V	
Output Low			0.4	V	I_{OUT} = 3.0 mA, V_{CC} = 5.0 V
Output Low		0.6		V	I_{OUT} = 10 mA
Load Current	-0.4			mA	V_{OUT} = 1.5 V, V_{CC} = 3.3 V
Max. Sampling Rate		>5.0		MHz	
Sampling Pulse Width (Gate)	100			ns	

NOTES:

(1) These ratings are limiting values above which severiceability of unit may be impaired.

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MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U. S. PATENTS: 291877, 3015048, 3025589, 3064167, 3108359, 3117260; OTHER PATENTS PENDING.

TRUTH TABLE

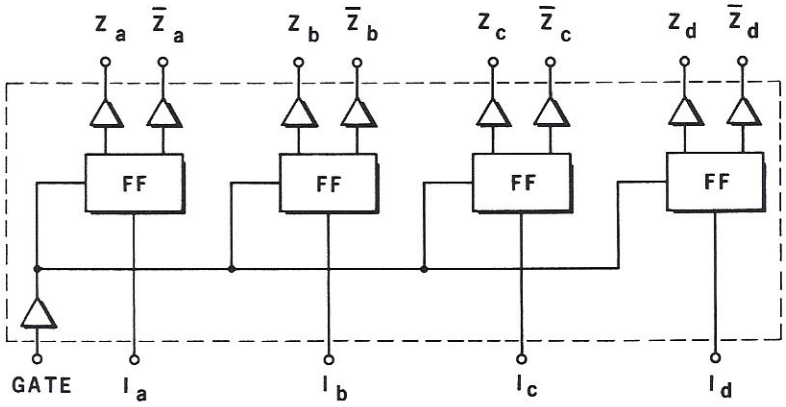
GATE	I	Z	$\overline{Z}$
L	L	L	H
L	H	H	L
H	ANY	Q	$\overline{Q}$

H = HIGH

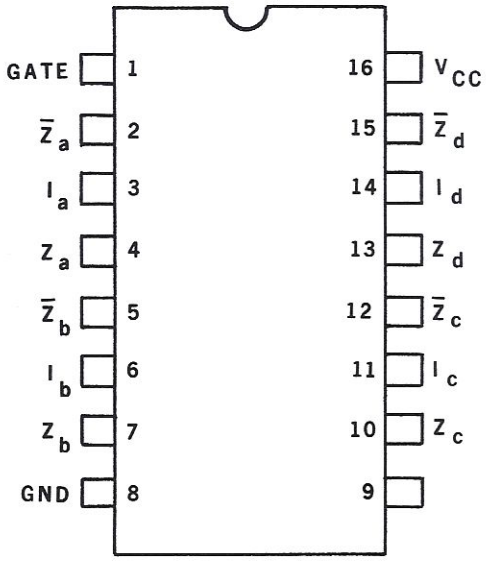
L = LOW

Q = THE STATE ASSUMED PRIOR TO "GATE HIGH" IS MAINTAINED.

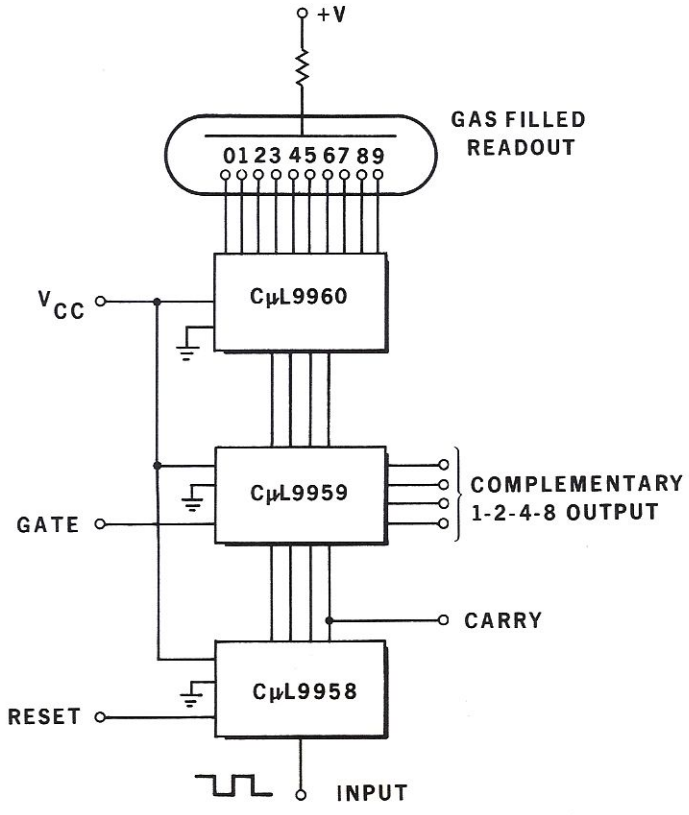
BLOCK DIAGRAM



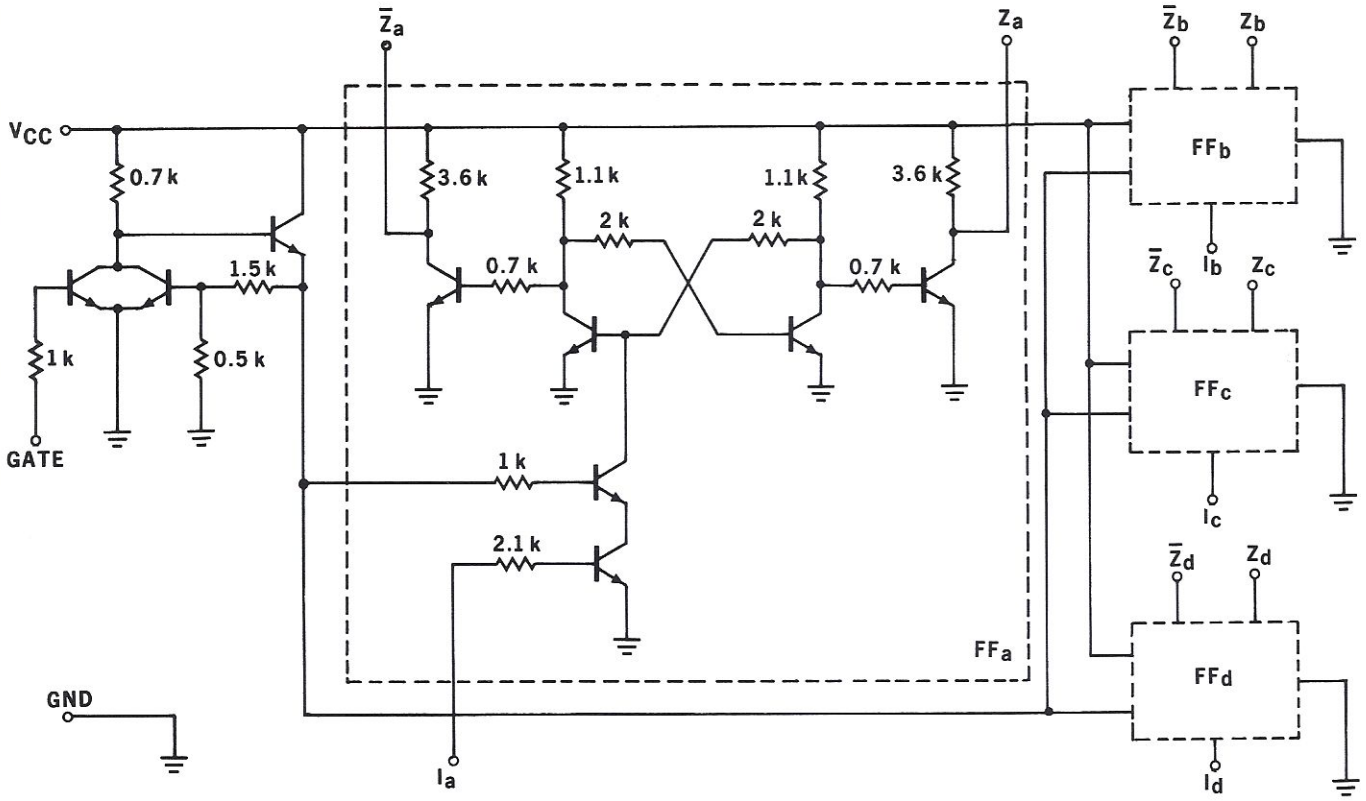
16 PIN DUAL IN-LINE PACKAGE (TOP VIEW)



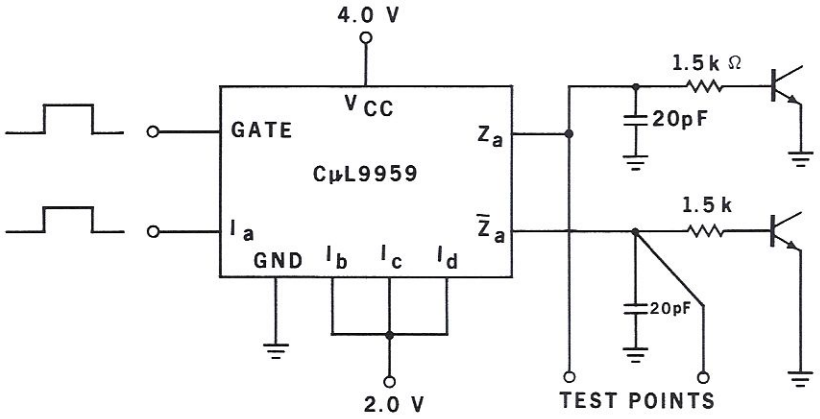
TYPICAL APPLICATION



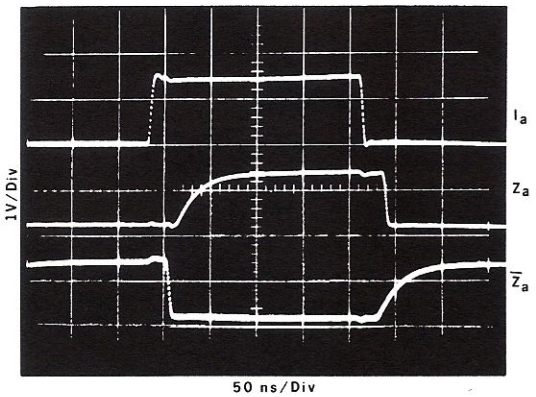
SCHEMATIC DIAGRAM OF BUFFER STORAGE UNIT



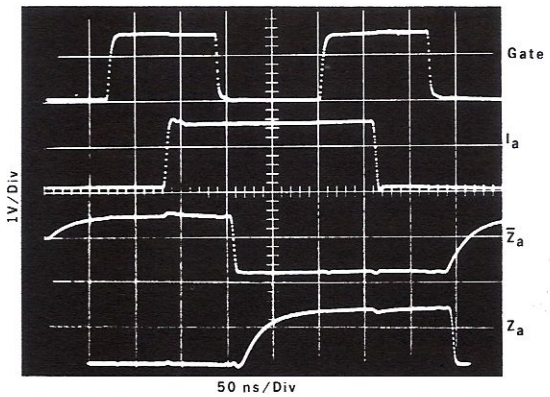
PROPAGATION DELAY



Delay from data Input to Output (Gate input low)

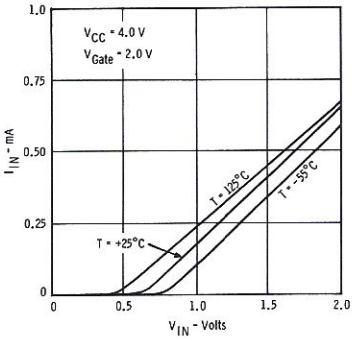


Delay from Gate Input to Output

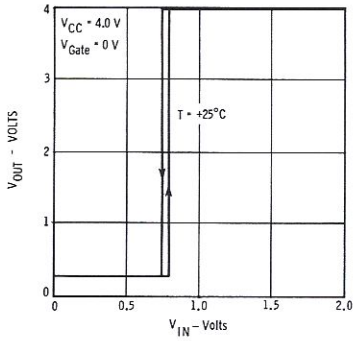


TYPICAL ELECTRICAL CHARACTERISTICS

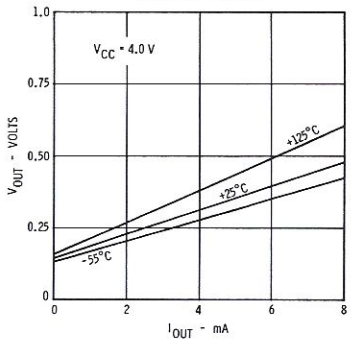
DATA INPUT CHARACTERISTIC



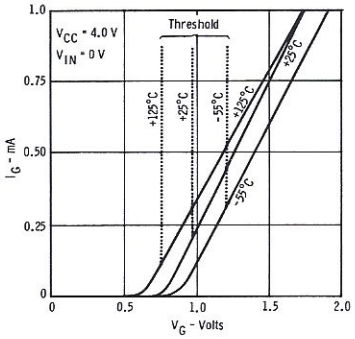
TRANSFER CHARACTERISTIC



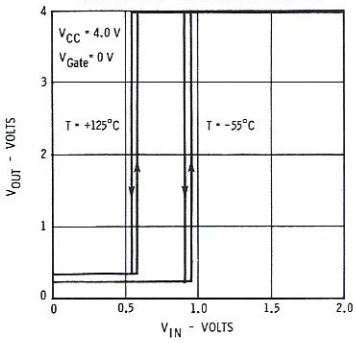
OUTPUT CHARACTERISTIC (OUTPUT LOW)



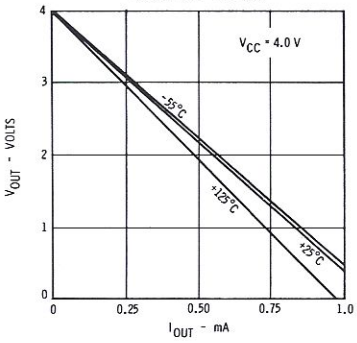
GATE INPUT CHARACTERISTIC



TRANSFER CHARACTERISTIC



OUTPUT CHARACTERISTIC (OUTPUT HIGH)



LOADING RULES FOR CμL9959

Driving Device	At V_{CC} of	Can Drive:
9959	3.3 to 5.0 V	2 9960 inputs ts
9959	3.3 to 5.0 V	4 Low Power RTμL loads
9959	3.3 to 5.0 V	1 RTμL load
9959	3.3 to 5.0 V	2 DTμL loads
9958	3.6 to 4.0 V	2 9959 data inputs
Full Range Low Power RTμL	4.0 V Min.* at -55°C	3 9959 data inputs or 1 9959 gate input
Industrial Range Low Power RTμL	3.6 V ± 10%	2 9959 data inputs
Full Range RTμL	3.0 ± 10%	10 9959 data inputs or 3 9959 gate inputs
Industrial Range RTμL	3.6 ± 10%	13 9959 data inputs or 5 9959 gate inputs
Full Range DTμL 6 K Family	4.5 V Min.	2 9959 data inputs or 1 9959 gate input
Full Range DTμL 2 K Family	4.5 V Min.	6 9959 data inputs or 2 9959 gate inputs

*See Low Power RTμL data sheet for details.

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